AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listing of claims in this application.

Listing of Claims:

1-97. (Canceled)

98. (Currently Amended) Apparatus for adjusting the dimensions of a tube by rolling comprising:

a plurality of cylindrical rollers, each roller comprising a first end and a second end;

a supporting cylinder comprising a first end flange and a second end flange, at least one of the end flanges being rotationally displaceable in the supporting cylinder;

the first end flange and second end flange defining a plurality of support apertures, the ends of the rollers supported in the support apertures;

the first ends of the rollers positioned on a pitch circle and the second ends of the rollers positioned on a pitch circle of equal diameter, so that the plurality of rollers form a parallel-cylindrical array;

the first end flange defining a first tube-pass aperture and the second end flange defining a second tube-pass aperture, so that the first and second tube-pass apertures permit the tube to advance through the parallel-cylindrical array of rollers;

means for adjusting the position of at least one of the end flanges of the supporting cylinder, so that the parallel-cylindrical array is skewed;

a motor to rotate the supporting cylinder, so that the rollers apply force to the external surface of the tube;

a mounting flange comprising a mounting flange bearing, the mounting flange bearing holding the supporting cylinder, wherein the mounting flange and motor are attached to a moving frame;

means for sensing at least one of a linear speed of the advancing tube, a straightness of the tube, a speed of rotation of the supporting cylinder, and a finished diameter of the tube; and

means for controlling the speed of rotation of the rollers in relation to the linear speed of the advancing tube.

99. (Previously Presented) The apparatus of claim 98, further comprising a means for controlling the speed of the motor in response to the movement of the moving frame.

100. (Previously Presented) The apparatus of claim 99, wherein the means for controlling the speed of the motor in response to the movement of the moving frame is a pneumatic control system comprising:

an air line providing power to the motor; and

a valve controlling the amount of air supplied to the air line, valve comprising a link to the moving frame,

so that when the moving frame changes position, the valve is actuated to change the amount of air supplied to the motor through the air line.

101. (Previously Presented) The apparatus of claim 99, wherein the means for controlling the speed of the motor in response to the movement of the moving frame is an electrical control system that varies electrical supply to the motor when the moving frame changes position.

Claims 102-117. (Canceled)

118. (Currently Amended) Apparatus for adjusting the dimensions of a tube by rolling comprising:

a plurality of rollers disposed in a cylindrical array, wherein the rollers are rotationally supported in end flanges of a supporting cylinder, and the ends of the rollers are positioned on pitch circles of equal diameter;

two or more bearings supported in part-spherical bushings at least partially disposed within the end flanges permitting angular displacement of the ends of the rollers relative to the end flanges, wherein at least one of the end flanges ~~are~~ is rotationally displaceable relative to the supporting cylinder;

an aperture disposed through each end flange permitting a tube to advance through the rollers on a path coaxial with the axis of the cylindrical array;

means for adjusting the relative position of at least one of the end flanges on the supporting cylinder to displace the rollers and thereby displace a contact zone of the rollers radially inwards into forceful contact with the external surface of the tube;

means for rotationally supporting the supporting cylinder;

means for rotating the supporting cylinder, thereby causing the contact zone of the rollers to pass over and work upon the external surface of the advancing tube;

means for supporting the supporting cylinder, the end flanges, and the rollers such that the axis of the support cylinder is maintained ~~colinear~~ collinear with the axis of the advancing tube; and

means for determining at least one of the linear speed of the advancing tube, the straightness of the tube, the speed of rotation of the supporting cylinder, and the finished diameter of the tube; and

means for controlling at least one of the speed of rotation of the rollers in relation to the speed of advance of the tube, the height of the supporting cylinder, and the displacement of the rollers.

119. (Previously Presented) The apparatus of claim 118, further comprising two or more cylindrical arrays arranged and operated in tandem to treat the advancing pipe or tubing.

120. (Previously Presented) The apparatus of claim 119, wherein alternate cylindrical arrays are rotated in opposite directions.

121. (Previously Presented) The apparatus of claim 118, wherein the means for rotating comprises at least one of an air motor driving through a belt chain or gear, a hydraulic motor driving through a belt chain or gear, or an electric motor driving through a belt chain or gear.

122. (Previously Presented) The apparatus of claim 118, wherein the means for adjusting the relative position of at least one of the end flanges comprises one or more adjustable-length struts,

and wherein the two ends of each adjustable-length strut are pivotally fixed respectively to an end flange and to the supporting cylinder.

123. (Previously Presented) The apparatus of claim 122, wherein the length of the one or more adjustable-length struts is adjusted through the use of a ball screw and nut arrangement actuated by a stepper motor.

124. (Previously Presented) The apparatus of claim 118, wherein the rollers comprise a centrally-disposed convex section or a centrally-disposed concave section.

125. (Previously Presented) The apparatus of claim 118, wherein the rollers have a diameter of about 20% of that of the tube to be worked upon.

126. (Previously Presented) The apparatus of claim 118, further comprising one or more shafts disposed at the ends of the rollers, wherein the shafts are rotationally supported in bearings at least partially disposed within the end flanges, and wherein the axial length of the shafts and bearings are sufficient in length to accommodate the axial displacement caused by the displacement of the rollers.

127. (Previously Presented) The apparatus of claim 118, wherein the supporting cylinder is fixed to the means for support with a quick-release attachment means.

128. (Currently Amended) A method for adjusting the dimensions of a tube by rolling comprising:

passing a tube through a plurality of rollers ~~disposed~~ that are arranged in a cylindrical array ~~with~~ wherein the longitudinal axis of the tube is maintained ~~colinear with that of~~ concentrically within the cylindrical array, wherein the rollers are rotationally supported in a housing and simultaneously radially displaceable;

displacing the rollers to bring the central contact zone of the rollers into forceful contact with the external surface of the tube;

rotating the cylindrical array of the rollers, thereby causing the central contact zone of the rollers to contact the external surface of the advancing tube;

sensing at least one of the linear speed of the advancing tube, the straightness of the tube, the speed of rotation of the cylindrical array, and the finished diameter of the tube; and

controlling at least one of the ~~speed~~ speeds of rotation of the rollers in relation to the speed of advance of the tube, the height of the roller housing to straighten the tube, and the degree of displacement of the rollers to regulate the finished diameter of the tube.

129. (Previously Presented) The method of claim 128, wherein the tube is continuous or discrete lengths.

130. (Previously Presented) The method of claim 128, wherein passing the tube through the plurality of rollers corrects any out-of-roundness of the tube and causes the external surface of the tube to be burnished.

131. (Previously Presented) The method of claim 128, further comprising passing the tube through two or more cylindrical arrays in tandem, wherein the two or more cylindrical arrays rotate in the same direction or alternating cylindrical arrays rotate in opposite directions.

132. (Previously Presented) The method of claim 129, wherein at least one of the speed of rotation of the rollers, the height of the roller housing, and the degree of displacement of the rollers is automatically controlled.

133. (Previously Presented) The method of claim 128, wherein the advanced tube is re-passed through the rollers such that each pass of the tube through the cylindrical array further reduces the diameter of the tube.